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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,651	08/07/2003	Chia-Tien Peng	10958-US-PA	1650

31561 7590 04/21/2005

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
TAIPEI, 100
TAIWAN

EXAMINER	
GHYKA, ALEXANDER G	

ART UNIT	PAPER NUMBER
2812	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/604,651	PENG ET AL.	
	Examiner	Art Unit	
	Alexander G. Ghyka	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-28 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-28 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

ALEXANDER GHYKA
PRIMARY EXAMINER

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Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 07 August 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 29-39 have been cancelled. Claims 1-28 are now under consideration.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 12 and 20-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Takayama et al (US 6,610,142).

The present claims generally require forming an amorphous silicon layer over a substrate, performing a plasma treatment, transforming the amorphous silicon layer into a polysilicon layer by laser annealing, patterning the polysilicon layer to form a plurality of island polysilicon layers, forming a channel region and a doped source/drain region on each side of the channel region and forming a gate over each channel region.

Takayama et al disclose forming a silicon oxide film, a plasma treatment, the formation of an amorphous silicon film, and its subsequent crystallization by laser annealing. See Example 1, column 6, lines 40-65. Takayama et al disclose nitrogen and oxygen containing plasmas (column 5, lines 25-35). Moreover, Takayamea et al discloses the formation of a channel region, source/drain region and gate in the

formation of a TFT transistor as required by the present claims. See Example 4, lines 1-60. Even though, Takayama disclose an additional silicon oxide film, the afore mentioned claim limitations are anticipated as the present Claim language does not exclude the additional silicon oxide layer or specify when the plasma treatment is performed. Therefore, Claims 1, 12 and 20-29 are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-28 area rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama et al (US 6,610,142) in view of Jen et al (JJAP Part 2: Letters 1991, 33 (7B), L997-L979) and Luan et al (Jour. Of Appl. Phys. 1990, 68(7), 3445-3450).

Takayama et al is relied upon as discussed above.

However, Takayama et al do not disclose an ammonia plasma which results in a positive shift of the threshold voltage of the TFT or a nitrous oxide plasma which results in a negative shift threshold voltage.

Jen discloses the formation of a thin film transistor, wherein a nitrous oxide plasma results in a smaller or negative shift of the threshold voltage of 0.5V. See the Abstract.

Luan et al disclose the formation of thin film transistors and the effect of NH3 plasma in increasing or positive shift in threshold voltage. See the Abstract and p. 3447, section B.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, that the nitrogen and/or oxygen containing plasma of Takayama et al can be used to adjust the threshold voltage in negative or positive shifts in light of the disclosure of Jen that ammonia plasma results in a positive shift of threshold voltage and the disclosure of Luan et al that nitrous oxide results in a negative shift. A *prima facie* case of obviousness is established, as all of the references pertain to thin film transistors and the use of plasma for the benefit of adjusting the threshold voltage as disclosed in the prior art would be readily apparent to one of ordinary skill in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander G. Ghyka whose telephone number is (571) 272-1669. The examiner can normally be reached on Monday through Thursday during general business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873 . The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AGG
April 13, 2005

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PRIMARY EXAMINER

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